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Treatment of migraine and tension-type headache in Croatia

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Abstract The aim of this study was to assess the treatment patterns of migraine and tension-type headache in the Croatian population. Analysis included the proportion of patients who were taking specific antimigraine therapy and the number of tablets per attack per month, the proportion of patients who were taking prophylactic therapy or using alternative treatment methods and their satisfaction with the treatment. The design of the study was a cross-sectional survey. Self-completed questionnaires were randomly distributed to adults >18 years of age in the Croatian population. A total of 616 questionnaires were analyzed: 115 patients with migraine (M), 327 patients with tension-type headache (TTH), and 174 patients with probable migraine (PM) and TTH. Specific antimigraine therapy was taken by half of patients with migraine: 35.7% of patients used triptans and 21.7% ergotamines. Prophylactic treatment had been used by 13.9% of M, 1.2% of TTH, and 6.9% of PM patients. Alternative methods of treatment were tried by 27% of M and TTH patients. Only 16.8% of patients with M pay regular visits to physicians, while 36.3% never visited a physician. More than half of TTH patients have never visited a physician. The majority of patients are only partially satisfied with their current treatment, and almost one-third are not satisfied. Results of this study indicate that the treatment of primary headaches in Croatia should be improved.

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Introduction

Studies worldwide continuously show low rates of medical consultations in patients with headache, with visits to neurologists being especially low, even with those patients who are aware of their condition [1, 2]. A large number of migraine patients receive no medical follow-up, think that consultations are useless and that there is no cure for their migraines [3]. Even though migraine is a significant personal and public health problem, it is not effectively managed in clinical practice. Most studies show that in the general population triptans are taken by 3–19% of patients with migraine, while most other patients are taking simple analgesics [2–6]. In some countries, higher percentages of triptan use have been observed [7]. Preventive treatment is used by a low percentage of migraine patients, with studies showing a range of 6–12.4% [3, 8]. The aim of this study was to assess the patterns of headache treatment in the general population, and to assess medical attendance as well as the level of satisfaction with current therapies offered. Our survey is the first of its kind in the Croatian population.

Methods

This study was part of a population-based study whose aim was to assess the prevalence of migraine (M), probable migraine (PM) and tension-type headache (TTH) as well as patterns of health care in Croatia. The design of the study was a cross-sectional survey of an adult population sample

using a self-completed questionnaire. The study population included adults >18 years of age, and the sample represented 4,437,000 Croatian adults. The survey was conducted in four Croatian cities: Zagreb, Split, Osijek, and Dubrovnik. The questionnaires were distributed in general medical practices randomly selected to contain a mix of urban, suburban, and rural settings, as well as range of social classes. In Croatia, 96% of the population is registered with a GP, providing a convenient frame for an indiscriminate sampling of the local population. Randomly selected patients from the GP's database were asked to fill out the questionnaire.

The questionnaire consisted of three sections:

Section 1 consisted of demographic data (age, gender, education, marital status, employment, and city of residence) as well as questions regarding the presence of headache.

Section 2 included questions which were designed to define the nature of the headache according to the ICHD-2 [9] criteria for M, PM, and TTH.

Section 3 consisted of questions aimed to assess patterns of headache treatment:

(a) Have you ever visited a doctor because of your headaches?
(b) Which doctor(s) have you visited?
(c) Which therapy do you use for acute headache attacks (respondents were asked to make a list of specific and non-specific therapies, numbers and types of medication, and overall satisfaction with therapy)
(d) Have you ever used prophylactic therapy?
(e) Have you ever tried alternative methods of treatment?
(f) Are you satisfied with your current therapy (on the whole)?
(g) Which are the main sources from which you receive information regarding health?

The questionnaire was designed combining literary sources of similar studies, the IHS classification (second edition) and advice from epidemiologic researchers. On return, the questionnaires were checked for the completeness, and questionnaires containing more than one unanswered question from any of the four sections were excluded from the final analysis. Patients who had definite M and TTH were classified into the M group, and those who had PM and TTH were classified in the PM group. Patients with TTH only were classified into the TTH group. This classification was made because the sampling size was too small to divide the patients into more than three groups. Furthermore, studies worldwide show that most M sufferers will have also TTH, at some point in their lives.

Statistical analysis

Data analysis was performed using the STATISTICA for WINDOWS release 6.0. Continuous variables were summarized as mean and standard deviation (SD). Categorical variables were summarized as a number (%). In the statistical analysis, the chi-square and Fisher exact tests were used to compare distribution of categorical variables between subgroups and Student t test to compare continuous variables. Statistic significance was considered at $P < 0.05$.

Results

Demographic characteristics

The questionnaires were sent to 2,000 inhabitants with 1,542 of them being suitable for analysis (77.1%). Of the total 1,542 respondents, 640 (41.5%) indicated that they suffer from a primary headache at least once within the span of a year. From the sample of 640 respondents, data regarding treatment patterns in the general population were assessed. Among 640 respondents, 115 (88 women, 27 men, mean age 42 ± 14) suffered from M, 327 (215 women, 112 men, mean age 41 ± 14) from TTH, and 174 (138 women, 36 men, mean age 39 ± 14) from PM with or without TTH. A majority of the respondents were married, had high school education, were employed, and resided in a city.

Medical attendance

A small percentage of patients with M visit a doctor regularly (16.8%) (Table 1). A quarter of M and PM patients declared to have visited a doctor several times but with no effect. A doctor was never visited by 36.3% of M patients

Table 1 Medical attendance

Visit to a physician	Migraine $n = 115$ (%)	TTH $n = 327$ (%)	PM $n = 174$ (%)	P value
Never	41 (36.3)	177 (55.5)	81 (46.6)	0.0024
Once	25 (22.1)	66 (20.7)	33 (19.0)	0.0024
Several times	28 (24.8)	42 (13.2)	42 (24.1)	0.0024
Regularly	19 (16.8)	34 (10.7)	18 (10.3)	0.0024
Primary care	57 (49.6)	139 (42.5)	74 (42.5)	0.39
Neurologist	51 (44.4)	53 (16.2)	43 (24.7)	<0.0001
Internal medicine	4 (3.5)	12 (3.7)	8 (4.6)	0.85
Other specialist	10 (8.7)	32 (9.8)	17 (9.8)	0.26

Numbers in parenthesis are percentages

and 46.6% of PM patients, whereas more than half of patients (55.5%) with TTH have never visited a doctor ($P = 0.002$). Approximately one-fifth of patients in all three groups visited a doctor once.

Patients with M have visited a neurologist significantly more as compared with TTH patients (44.4 vs. 16.2%) ($P < 0.0001$) (Table 1). Almost half of patients with any type of primary headache have visited a primary care physician at least once. Other specialists that headache sufferers visited were internal medicine doctors (24 cases), ophthalmologists (12), ENT specialists (19), rheumatologists (14), psychiatrists (9), cardiologists (2), gynecologists (2), and urologists (1).

Treatment patterns

Medication used, number of tablets taken, overall satisfaction, preventive and alternative therapies are shown in Table 2. A total of 57.4% of respondents with M stated that they are using specific antimigraine therapy such as triptans (sumatriptan or zolmitriptan; 35.6%) or ergotamines (21.8%).

Among M patients, 67.4% stated that these medications relieve the pain if taken in time and will partially help in 27.9% of cases.

Patients with M were least likely to take only one tablet for a headache attack as compared with the TTH and PM groups ($P = 0.0033$). The least-satisfied group of patients was the PM group if they took only one tablet per attack ($P = 0.0001$).

Two medications per headache attack were most likely to be taken by patients in the PM group ($P = 0.003$). Most satisfied with two tablets were patients from the TTH group ($P = 0.004$). Two or three tablets per headache attack were most likely to be taken by patients in the M and PM groups as compared with the TTH group ($P = 0.003$). Regarding satisfaction with therapy, there was no significant difference among patient groups if they had to use three tablets per attack. Comparing all three groups, patients with M were most likely to take the largest total number of medications for their headache attacks per month.

Prophylactic treatment has been prescribed to 13.9% of M, 1.2% of TTH, and 6.9% of PM patients. Details on the type of prophylactic therapy used were not obtained.

Alternative methods for headache treatment were used by 27% of M and TTH patients; 60% of TTH patients were satisfied with therapies received as were approximately 40% of patients with M and PM. There was no statistical significance among the number of patients who used alternative treatment between the three groups of patients ($P > 0.05$) (Table 2).

Satisfaction with therapy

Satisfaction with current therapies among our group of patients was not statistically different between subgroups (Table 3). Approximately one quarter of patients or less declared they were completely satisfied, nearly half of the patients were partially satisfied, one-fifth (M and TTH groups) of patients were mostly unsatisfied and 10% or less in each group were not satisfied at all (Table 3).

Sources of health information

As an information source, patients with M and PM were more likely to visit a specialist such as a neurologist or internal medicine specialist ($P = 0.005$), and gain information regarding headaches from internet ($P = 0.002$) or medical books ($P = 0.0008$) as compared with patients with TTH. Patients with TTH are more likely to gain information from family and friends ($P = 0.02$) or mass media ($P = 0.0001$) as compared with M patients (Table 4).

Discussion

Medical attendance

Worldwide population-based epidemiologic surveys have consistently demonstrated that the majority of M sufferers are not currently consulting their physicians about their problem and that many have never even consulted a physician [10–18].

Studies in Canada, Denmark, The Netherlands, and USA have shown that 55–70% of M patients sought initial treatment from primary care physicians [10, 12, 15]. A UK study showed that 20% of M sufferers never visited a doctor and among those who did almost 50% felt that the physician did not help [13]. In Sweden, 27% of patients with M visited a doctor (6% regularly and 21% occasionally) with 60% being satisfied with their treatment [16]. In Austria, 39.6% never visited a doctor, 30.8% once, 16.8% occasionally, and 12.8% regularly [18]. Two studies from France indicated that 59% had visited a doctor; in one study 70% were not satisfied with initial treatment after their first visit, with 48% being satisfied in the other study. Among those who had never visited a doctor 87% were from MIDAS I group and even 68% were from MIDAS IV group [3, 19]. A study that encompassed data from six South American countries stated that 59% of patients had never visited a doctor [20]. In Europe, patients usually need to be referred to a specialist by their primary care physician, and about 5–15% will visit a specialist [15, 21, 22].

Table 2 Use of specific, non-specific, prophylactic, and alternative therapies in patients with headache, their overall satisfaction, and number of tablets taken according to headache subtype

Medications	Migraine $n = 115$ (%)	TTH $n = 327$ (%)	PM $n = 174$ (%)	*P* value
Specific				
Sumatriptan	23 (20.0)	1 (0.3)	17 (9.8)	<0.0001
Zolmitriptan	18 (15.7)	2 (0.6)	7 (4.0)	<0.0001
Ergotamines	18 (15.7)	3 (0.9)	14 (8.1)	<0.0001
Dihydroergotamines	7 (6.1)	0	4 (2.3)	0.0001
Do these medications relief pain?				
Yes, if taken on time	29 (67.4)	1 (16.7)	14 (50.0)	0.0007
Partially	12 (27.9)	2 (33.3)	13 (46.4)	0.0007
No	2 (4.7)	3 (50.0)	1 (3.6)	0.0007
Number of tablets (specific or non-specific)				
Per attack: one	84 (73.0)	296 (90.5)	149 (84.2)	0.0033
Tablets per month, number (range)[a]	8.6 (4.9–12.2)	5.3 (4.2–6.4)	7.3 (5.4–9.1)	0.0420
Do these medications relief the pain?				
Yes	54 (71.1)	211 (79.6)	72 (57.1)	0.0001
Partially	19 (25.0)	52 (19.6)	49 (38.9)	0.0001
No	3 (4.0)	2 (0.8)	5 (4.0)	0.0001
Per attack: two	29 (25.2)	81 (24.8)	71 (40.1)	0.0033
Tablets per month, number (range)[a]	11.3 (1.6–20.1)	5.9 (3.0–8.9)	6.6 (3.7–9.6)	0.2689
Do these medications relief pain?				
Yes	12 (48.0)	56 (78.9)	31 (52.5)	0.0041
Partially	9 (36.0)	14 (19.7)	23 (39.0)	0.0041
No	3 (12.0)	1 (1.4)	5 (8.5)	0.0041
Per attack: three	11 (9.6)	15 (4.6)	20 (11.3)	0.0033
Tablets per month, number (range)[a]	20.1 (0–45.2)	13.5 (0–31.1)	9.4 (0–21.1)	0.6348
Do these medications relief pain?				
Yes	5 (55.6)	10 (71.4)	10 (58.8)	0.5195
Partially	3 (33.3)	4 (28.6)	6 (35.3)	0.5195
No	1 (11.1)	0	1 (5.9)	0.5195
Prophylactic treatment	16 (13.9)	4 (1.2)	12 (6.9)	<0.0001
Alternative methods of treatment				
Chiropractics	3 (2.6)	13 (4.0)	12 (6.9)	0.1777
Acupuncture	10 (8.7)	11 (3.4)	8 (4.6)	0.0673
Homeopathy	2 (1.7)	4 (1.2)	2 (1.2)	0.8964
Physical therapy	11 (9.6)	40 (12.2)	17 (9.8)	0.6023
Autogenic training	4 (3.5)	4 (1.2)	4 (2.3)	0.2980
Yoga, meditation	8 (7.0)	11 (3.4)	9 (5.2)	0.2528
Something else	10 (8.7)	40 (12.2)	26 (14.9)	0.3794
Total	31 (27.0)	89 (27.2)	49 (28.2)	0.9670
Do these methods help?				
Yes	12 (38.7)	53 (59.5)	20 (40.8)	0.5446
Partially	3 (9.7)	2 (2.2)	2 (4.1)	0.5446
No	16 (51.6)	34 (38.2)	27 (55.1)	0.5446

[a] Numbers represent average (range) consumption of tablets per month

Many M sufferers who do consult physicians for M relief do not receive a correct diagnosis. In a US study, 40% of M sufferers stated that they had not been diagnosed as having M even after consultation with a physician [12]. Only 45% of migraineurs who sought medical treatment for their migraines were correctly diagnosed [23].

Table 3 Satisfaction with current therapy (on the whole)

Satisfaction with current therapy	Migraine $n = 115$ (%)	TTH $n = 327$ (%)	PM $n = 174$ (%)	P value
Totally	24 (26.1)	57 (27.9)	25 (19.2)	0.65
Partially	40 (43.5)	91 (44.6)	62 (47.7)	0.65
Mostly not	18 (19.6)	40 (19.6)	31 (23.9)	0.65
Not at all	10 (10.9)	16 (7.8)	12 (9.2)	0.65

Table 4 Sources of health information

Sources of health information	Migraine $n = 115$ (%)	TTH $n = 327$ (%)	PM $n = 174$ (%)	P value
Primary care physician	56 (48.7)	129 (39.5)	86 (49.4)	0.0535
Specialist (neurologist and internal medicine)	21 (18.3)	25 (7.7)	23 (13.2)	0.0049
Family friends	28 (24.4)	123 (37.6)	55 (31.6)	0.0288
Journals	38 (33.0)	181 (55.4)	78 (44.8)	0.0001
TV and radio	34 (29.6)	155 (47.4)	61 (35.1)	0.0008
Internet	24 (20.9)	36 (11.0)	37 (21.3)	0.0027
Medical books	27 (23.5)	50 (15.3)	51 (29.3)	0.0008
None	1 (0.9)	4 (1.2)	0	0.3471
Other	8 (7.0)	4 (1.2)	6 (3.5)	0.0064

Results of our study are similar to studies from other countries regarding physician visit. Due to a M headache, 63.7% of M patients have visited a physician at least once, but only 16.8% pay regular visits. One quarter of M and PM patients have visited a physician several times, but have not been satisfied with treatment. For M, 4–5% of patients have seen an internal medicine doctor, and nearly 10% of headache sufferers have visited other specialists.

In our study, 43–50% of patients had visited a GP, among those 44.4% with M had also visited a neurologist and only 16.2% with TTH ($P < 0.0001$). The reason for the high percentage of patients visiting a neurologist is probably because in Croatia, a prescription for triptans requires a neurologist's approval. This is probably a major obstacle for a proportion of patients who cannot find the time to visit a specialist, or have difficulties with making an appointment. In Croatia, 96% of the population has "basic health insurance" covering visits to GPs and a minor part of costs for medical examinations or medications. The "additional health insurance" costs between 130 and 214 Euros per year (depending on the amount of the salary or pension), and covers the majority of cost for medical examinations and drugs. A patient who is not paying the "additional insurance" will pay 16.5 Euros for a visit to a neurologist. There is a so-called "list A" for medications which are fully covered and a "list B" which are partially covered by the health insurance. The three available triptans in Croatia (sumatriptan, zolmitriptan, and rizatriptan) are reimbursed by health insurance: sumatriptan tablets 50 mg are fully reimbursed ("list A") and for others (sumatriptan nasal spray, zolmitriptan, and rizatriptan melting disks or tablets-"list B") there is an additional surcharge of approximately 3–8 Euros per package. A prescription for triptans, however, is not necessary, but at a cost of between 9 and 31 Euros per package, the costs for triptans are high. The average salary in Croatia is approximately 730 Euros, and the unemployment rate is now 14%. Therefore, if the patient does not have the "additional health insurance" the costs for visits to a neurologist and for triptans are rather high.

Satisfaction with treatment

One study showed that the main reasons were dissatisfaction with treatment or feeling that the physician was ignorant about, or not interested in solving the problem [10]. In a population-based study in the United States, only 29% of M sufferers reported that they were "very satisfied" with their usual acute treatment [24].

Our study showed that when specifically asked for satisfaction with treatment so far, the results of the proportion of patients in each group was similar: one-fifth to one quarter of patients being completely satisfied, nearly half of patients stated that they were partially satisfied, and approximately 30% were mostly or completely unsatisfied. Patients attending headache clinics were more satisfied with treatments provided than patients visiting community care physicians [25].

These data should be analyzed for use in future studies to show subgroups of patients and their reasons for dissatisfaction with current therapies. Targeting untreated groups will help establish better health care plans in Croatia. Our study has shown that the main information source are mass media (journals 55.4% and TV or radio 47.4%), whereas information from the internet and from medical books is still restricted to a smaller number of health seekers.

Use of acute treatment

Triptans are widely recommended for M since studies have shown that their use increases productivity at work and improves the quality of life of M sufferers [26]. However, studies worldwide show that the majority of M patients are using OTCs and the minority is using triptans [2–6, 17, 27, 28]. This is largely influenced by the physician who is treating the patient. A study from Singapore showed that community care physicians treat patients with triptans far less than do physicians in headache clinics [25].

In our study, 57.4% of M patients stated that they are currently using or have tried specific M treatment: 35.7% used triptans and 21.8% used ergotamines or dihydroergotamines. According to Croatian guidelines for headache treatment [29], analgesics and triptans should be the first line for M treatment, while ergotamines can be recommended with some exceptions. However, our results show that a large number of patients are still using ergotamines. Reasons for this are probably due to the fact that these drugs were previously used as specific treatment, and patients have a lack of information regarding new drugs such as triptans. Another reason is that ergotamines are somewhat less expensive as compared to triptans: a price for 20 tablets of combined ergotamine with paracetamol and caffeine is 7 Euros; however, they are not available as OTC drugs and are not a prescription drug in Croatia (they can only be purchased abroad). The least expensive are NSAIDs; the price varies between 1 and 3 Euros for ten tablets.

In our study, 67.4% of M patients were satisfied with specific medications if taken on time and only 4.7% were not satisfied. Studies showed that intra-individual consistency to oral triptan response is 40–50% in 3/3 M attacks [30]. Efficacy, adverse events, costs, and physician's knowledge have a major influence on triptan consumption.

Results of our study showed that patients with M were taking significantly more tablets per month for M attacks as compared with TTH patients. In the group of patients who were taking one tablet per month, 71.1% of M patients were satisfied with their treatment and an additional 25% were partially satisfied, whereas the percentage of satisfied patients who must take two or three medications was 48 and 55.6% respectively. In the TTH group, approximately 70–80% of all patients (taking 1, 2 or 3 tablets per attack) were satisfied with treatment. These results indicate that the more medications the patients must take per headache attack, the less likely they are to be satisfied with their efficacy. This study was not designed to provide data on medication overuse in the general population; therefore, these data is not available. A study from the USA showed that half of the patients use OTC drugs for the acute M attack despite the fact that 73% of them require a second dose or product; patients using a triptan were less likely to require a second dose or product [31]. A survey comparing the consumption of analgesics over the past 20 years in nine countries showed that in half of countries analyzed the consumption of analgesics has increased significantly, and it has remained constant or showed a minor increase in the others [32].

Use of prophylactic treatment

In our study, 13.9% of patients have used prophylactic therapy for M. The details regarding the type and duration of prophylactic therapy were not obtained. A French study showed that only 6% of M patients are currently taking prophylaxis, among those 22% were in MIDAS III or IV group [3]. Another population-based study in France showed that only 0.3% of M patients and 1.4% with PM are taking prophylactic treatment [27]. A study from the USA showed that 12.4% of patients with M are taking prophylaxis [8] and 7.9% of PM patients, even though this percentage should be higher based on patients' characteristics [33]. In Australia, 8.3% of patients were taking prophylactic medication [34]. In a Canadian study, only 31% of patients with severe or chronic M were taking prophylactic treatment [7]. More than half of patients on prophylaxis, especially <40 years of age, tend to discontinue the therapy within 3 months [35].

Use of alternative treatment

Alternative methods of treatment in our study have been used by approximately one quarter of patients in all three groups of patients. Approximately 40% of patients with M and PM were satisfied with alternative methods, whereas in the TTH group this percentage was even higher, at 60%. Studies from other countries show that patients relatively frequently reach for alternative methods for headache treatment: approximately one-third of patients in Italy, Switzerland, and Singapore tried at least one method [25, 36, 37]. Analysis of patients who visited a specialized headache clinic revealed that even 84% tried one or more alternative methods and 60% of those stated that these methods were efficient [38]. American studies observed an

increase in the proportion of patients seeking alternative methods for headache treatment [39].

Study limitations

This study has several limitations. First, the data were collected by a questionnaire; it is possible that the data obtained from a face-to-face interview would, to some extent, be different. Second, the data regarding the number of specific acute M treatment and OTC drugs were provided as a total number of used medication and not in separate groups. Furthermore, details about types of prophylactic treatments were not provided due to the limited number of questions asked. Finally, due to a rather small sample size our results need to be further validated.

Conclusion

Health care systems must aim to satisfactorily manage the majority of M patients by primary care physicians [21], and more severe cases should have easy access to neurologists, preferably headache specialists. Results of our study regarding treatment patterns of primary headaches in Croatia are similar to other countries worldwide, with certain differences. Current health care laws in Croatia probably influence the treatment of M sufferers. We believe that current health care policies in Croatia regarding headache management should be revised to offer an easier approach; patients with headache should be encouraged to visit physicians more regularly, and public information should be more accessible. Such activities are under way, and in near future we expect improvement in headache care in Croatia. We hope that the results of our study will help to improve the management of primary headaches in Croatia.

Conflict of interest None.

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